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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.    | CONFIRMATION NO. |
|---|-------------|----------------------|------------------------|------------------|
| 09/476,219  | 12/30/1999  | Robert J. Fite       | 884.182US1             | 7477             |
| 21186   | 7590        | 06/15/2006           | EXAMINER               |                  |
| SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.<br>P.O. BOX 2938<br>MINNEAPOLIS, MN 55402 |             |                      | HAN, YOUNGHUIE JESSICA |                  |
|   |             |                      | ART UNIT               | PAPER NUMBER     |
|   |             |                      | 2838                   |                  |

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |  |                                     |  |
|------------------------------|--------------------------------------|--|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>09/476,219 |  | <b>Applicant(s)</b><br>FITE, ROBERT |  |
|                              | <b>Examiner</b><br>Y. J. Han         |  | <b>Art Unit</b><br>2838             |  |
|                              |                                      |  |                                     |  |

HJD

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS; WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on 27 March 2006.

2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-16 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

6) ☒ Claim(s) 1-16 is/are rejected.

7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
       Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
       Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
       a) ☐ All    b) ☐ Some \* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

|  |  |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____<br>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)<br>6) <input type="checkbox"/> Other: _____ |
|--|--|

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1, 3, and 14 are objected to because of the following informalities:  
  
In claim 1, “a minimum operating but nonzero load current level” is unclear.  
  
In claims 3 and 14, “the minimum current voltage level” lacks antecedent basis.  
  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-10 and 12-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Redl et al (6,064,187).

Redl et al discloses sensing an output current (64) drawn from the DC-DC converter; converting the sensed output current to a voltage signal indicating the sensed output current (78/76); adjusting the voltage signal indicating the sensed output current such that the voltage is at a minimum voltage level when the current drawn is at a maximum load current level and the voltage is at a maximum operating voltage level when the current drawn is at a minimum but nonzero operating load current level (see Figures 10a-b); and adding/subtracting the adjusted voltage signal from the voltage provided by the DC-DC converter (see Figure 9, abs., and col. 10, line 65 thru col. 11 line 15).

4. Claims 1-5, 7-10, and 13-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Rincon-Mora et al (6,188,211).

Rincon-Mora et al discloses sensing an output current (40) drawn from the DC-DC converter; converting the sensed output current to a voltage signal indicating the sensed output current (40,42); adjusting the voltage signal indicating the sensed output current such that the voltage is at a minimum operating voltage level when the current drawn is at a maximum load current level and the voltage is at a maximum operating voltage level when the current drawn is at a minimum but nonzero operating load current level (see Figures 2a-b); and subtracting the adjusted voltage signal from the voltage provided by the DC-DC converter (see Figure 1, and col. 6, line 35 thru col. 7 line 52).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Redl et al (6,064,187) in view of Covington et al (6,031,749).

Redl et al meet all of the claim limitations except for the use of software executing on a processor. Covington et al, however, teaches that use of software executing on a processor is well known in the power supply art (see Figs. 8A-C). Therefore, it would have been obvious to one having ordinary skill in the art to employ the software in Redl et al, as taught by Covington et al, in order to enhance overall reliability and the reduction in circuit complexity.

*Response to Argument*

7. The applicant's argument directed to the differences between the instant invention and the applied reference has been fully considered but is not deemed to be persuasive as applied to the claims.

With respect to Redl et al. (6,064,187), applicant contends that Figs. 10a and 10b illustrate a transition from one operating voltage level to another and it does not provide a maximum voltage when the current drawn is at a minimum but nonzero load level. Figs. 10a and 10b show clearly that the voltage is at a minimum operating voltage level (about 2.74 V) when the current drawn is at a maximum load current level (14.56 A) and the voltage is at a maximum operating voltage level (about 2.82 V) when the current drawn is at a minimum operating but nonzero load current level (0.56 A). Hence, claims fail to distinguish over the Redl et al.

As for independent claim 8, it clearly contradicts applicant's argument. Applicant asserts that pending claims "each recite that an output voltage is at maximum operating voltage level when the current drawn is at a minimum operating but nonzero load current level." In contrast, claim 8 recites "that the voltage is at a maximum voltage level when the current drawn is at a maximum load current level and the voltage is at a minimum voltage level when the current drawn is at a minimum but nonzero load current level" (emphasis added).

Applicant's invention is no different than the prior art. Figure 3 also supports such relationships between the output voltage level and the current load level. Note also that the prior art Figures 1 and 2 are no different than the applicant's invention of Figures 4 and 5. Applicant

is requested to point out how the admitted prior art Figures 1 and 2 are different from the applicant's Figures 4 and 5.

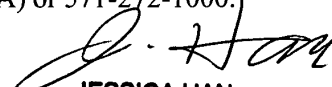
With respect to Rincorn-Mora et al. (6,188,211), applicant contends that the reference "does not appear capable of monitoring or using output current to adjust voltage." See column 6, lines 36-44. Rincorn-Mora et al, on the contrary, discloses that "FIG. 2a illustrates the behavior of output voltage  $V_{out}$  in response to changes in the load current  $I_{load}$  drawn by load 11 in the example of FIG. 1, as illustrated in FIG. 2b" (col. 6, lines 38-41).

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y. J. Han whose telephone number is 571-272-2078. The examiner can normally be reached on Mon-Fri 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.]

  
**JESSICA HAN**  
**PRIMARY EXAMINER**